COLUMBIA RIVER TECHNICAL MANAGEMENT TEAM
May 10, 2019
DRAFT Facilitator's Summary
Facilitator: Donna Silverberg; Notes: Colby Mills, DS Consulting

The following Facilitator's Summary is intended to capture basic discussion, decisions, and actions, as well as point out future actions or issues that may need further discussion at upcoming meetings. These notes are not intended to be the "record" of the meeting, only a reminder for TMT members. Official minutes can be found on the TMT website: http://www.nwdwc.usace.army.mil/tmt/agendas/2019/.

Because consensus was not reached at the May 8 TMT meeting, the group continued the conversation to coordinate FOP spring spill options. Based on recommendations from Salmon Managers, the Corps presented two viable options to coordinate spill management at The Dalles and John Day Dams, covering both technical and policy issues.

Option 1
Balance spill between John Day and The Dalles Dams in order to achieve spill at The Dalles Dam no lower than 40%.

→ Prioritizing spill at The Dalles Dam no lower than 40% would likely result in spill in the John Day tailwater less than 120% TDG.

Option 2
Prioritize spill to meet but not exceed 120% TDG below both John Day and The Dalles Dams.

→ The Dalles Dam spill would likely be below 40%. If The Dalles Dam forebay TDG were to go above 120%, the Corps would reduce spill incrementally, down to as low as 0% to maintain tailrace TDG to meet but not exceed the states' water quality standard of 120%.

Dan Turner, Corps, clarified that the Corps is and continues to make daily spill decisions based on the most current information available, and perfect predictions are not possible with changing conditions. Salmon Managers emphasized their desire to keep trying all possible options in the best interest of fish, while recognizing that the Corps is doing their best adaptive management to meet state water quality standards for TDG at the tailwater gauges.

Julie Ammann, Corps, emphasized the Corps' challenge to operate to meet 120% at both John Day and The Dalles, with the guidance received at TMT from Salmon Managers not to go below 40% spill at The Dalles. She stressed that, under current conditions, all three objectives (meet but not exceed 120% TDG below John Day, meet but not exceed 120% TDG below The Dalles and spill no lower than 40% at The Dalles) cannot be met at the same time, so using adaptive management, the Corps is doing their best to balance those three objectives.

Russ Kiefer, Idaho, offered a third option to the group: to spill similar levels at both projects with the intent of meeting but not exceeding 120% TDG in tailrace of The Dalles. He thought this was best for reducing juvenile powerhouse passage (referred to as PIT PH), and noted The Dalles would be primarily dealt with. Idaho's proposal would reduce PIT PH and balance spill levels between John Day and The Dalles to meet 120% TDG at The Dalles. Russ was confident that it would reduce overall PIT PH at The Dalles versus the current flex spill operation that would require reducing spill at The Dalles below 40%.

Dan presented an update on TDG to the group, highlighting the sensitive relationship between percent spill, upstream TDG, and the effect that environmental factors have on managing TDG operations. Erick Van Dyke, OR, noted that Oregon's goal is to make the Flex Spill agreement function the best it can and feels confident that the Corps is trying to use their best judgment based on the environmental conditions and regulations they have to work within, while seeking to implement the Flex Spill agreement.

Given the information and recommendations provided, the Corps expressed that, based on their professional judgement, they believe the best path forward would be operating Option 1.

Formal Polling for Option 1

BOR	Support
BPA	Support
Colville Tribe	Support (want to hear more about Idaho's alternative option)
COE	Support
Idaho	Support (versus default Option 2)
Kootenai Tribe	*Absent*
Montana	*Absent*
Nez Perce Tribe	Support (caveat: this is not a long-term solution)
NOAA	Support
Oregon	Abstain
Spokane Tribe	*Absent*
Umatilla Tribe / CRITFC	Support
USFWS	Support (want to hear more about Idaho's alternative option)
Warm Springs Tribe	Support
Washington	Support

Based on the results of the formal poll the Corps will move forward with implementation of targeting 120% TDG in The Dalles tailrace while maintaining The Dalles spill to at least 40%. If necessary to achieve both of those objectives, John Day spill may be reduced below the gas cap.

→ **ACTION**: Russ will work with the Corps on likely spill levels if both projects are managed to similar spill levels and target 120% in The Dalles tailrace. Apply to powerhouse passage curve to figure how that would change overall powerhouse passage between the two projects compared to Option 1 implementation.

→ **ACTION**: BPA will work with the Colville Tribe to clarify how power production plays into these operations.

The next scheduled TMT meeting is a face-to-face meeting on May 15, 2019, at 9:00 AM.
A process meeting will follow for TMT Members.

This summary is respectfully submitted by the DS Consulting Facilitation Team. Suggested edits are welcome and can be sent to Colby at colby@dsconsult.co.

Columbia River Regional Forum

Technical Management Team OFFICIAL MINUTES
Friday, May 10, 2019
Minutes: Melissa Haskin, FLUX Resources

Today's TMT meeting was chaired by Doug Baus, Corps, and facilitated by Donna Silverberg, DS Consulting. Today's meeting was an unscheduled TMT to cover topics that were unresolved at Wednesday's meeting. See the end of these minutes for a list of today's attendees.

1. FOP Spring Spill – Doug Baus, Julie Ammann, and Dan Turner, Corps

Julie Ammann, Corps, and Doug Baus, Corps, gave a recap of the TMT meeting on Wednesday, May 8, and the issues at hand. The purpose of today's TMT is to coordinate spill operations at John Day Dam and The Dalles Dam.

During the 5/8 TMT meeting, the Corps noted that setting spill caps at John Day and The Dalles are different than at other projects. The Dalles tailwater TDG gauge is strongly influenced by upstream TDG coming in from John Day, thus The Dalles spill caps are impacted by John Day spill and environmental conditions. It has been a challenge to operate both projects to meet but not exceed 120% TDG without reducing spill at The Dalles below 40%, which was a lower limit recommended by some salmon managers during previous TMT meetings. The Corps outlined the following two options to manage spill caps at John Day and The Dalles:

Option 1 – Balance Spill between John Day and The Dalles Dams in order to achieve spill at The Dalles Dam no lower than 40%.

a. Prioritizing spill at The Dalles Dam no lower than 40% would likely result in spill in the John Day tailwater less than 120% TDG.

Option 2 – Prioritize spill to meet but not exceed 120% TDG below both John Day and The Dalles Dams.

a. The Dalles Dam spill would likely be below 40%. If The Dalles Dam forebay TDG ≥ 120%, to meet state water quality standards, the Corps would reduce spill incrementally, down to as low as 0% to maintain tailrace TDG to meet but not exceed 120%.

At the 5/8 TMT meeting, there was a lack of consensus among the salmon managers on operational priorities. NOAA, ID, WA, USFWS, and Umatilla supported maintaining at least 40% spill at The Dalles and reducing John Day below the gas cap if necessary to achieve that (Option 1). However, Oregon objected to reducing John Day spill below the gas cap. Due to this lack of consensus, the Corps is continuing to operate per the Spill Agreement to meet but not exceed 120% TDG at both projects and will reduce The Dalles spill below 40% if necessary

(Option 2), unless otherwise recommended by consensus from TMT. NOAA, ID, and WA objected to spilling less than 40% at The Dalles and the issue was elevated to RIOG by NOAA.

The intent of today's meeting is to revisit this topic after salmon managers had time to review the recent FPC memo and other available data in order to come up with a recommendation.

Dave Swank, USFWS, asked what the Corps has in mind for "incremental" spill cap changes. Dan Turner, Corps, clarified that the Corps will continue to evaluate the data daily and set daily spill caps based on that. He added an example, saying if spill at The Dalles needed to be dropped to 0 kcfs, the Corps would take a measured approach and step down incrementally over a few days and evaluate the response. So far daily spill cap changes have been in the 1%-5% range. He said he would expect that range to persist moving forward.

Russ Kiefer, ID, said he would like to explore a third option: spill similar levels at both projects to meet but not exceed 120% TDG in the tailrace of The Dalles. He says this option would be best for meeting Idaho's objective of reducing overall powerhouse passage. Kiefer's recommendation would mean 50-55% spill at both projects as opposed to Option 1 which could result in dissimilar spill at the projects (currently about 76% at John Day and 40% at The Dalles).

Paul Wagner, NOAA, wondered where the options came from. Baus shared that they were the options discussed at TMT's 5/8 meeting.

Erick Van Dyke, OR, asked how the Corps is calculating average TDG. The Corps responded that they are using the state water quality standards, which is the 12-hour metric.

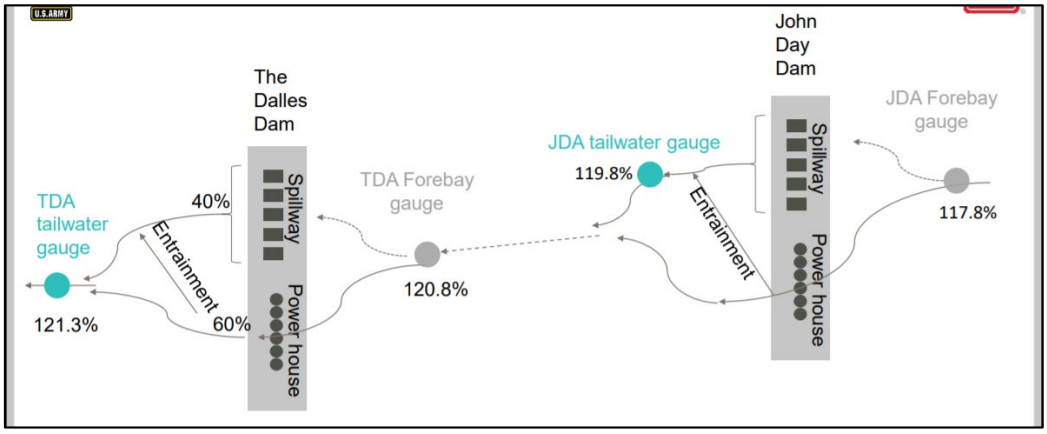
Earlier in the week, an FPC memo was released that compared juvenile powerhouse passage (referred to as PIT PH) under both options. Most TMT members and salmon managers did not have time to review the memo before Wednesday's meeting. Some of today's meeting centered around the information in that memo, which is available on the FPC website.

Wagner stated that the objective of the Spill Agreement is to reduce PIT PH. Option 1 achieves that objective by maintaining at least 40% spill at The Dalles with the potential for a slight reduction in spill at John Day during gas cap hours. The cost of the potential slight reduction in John Day spill would be outweighed by the benefit of keeping The Dalles spill no lower than 40% based on the spill efficiency curves and FPC memo.

Van Dyke disagreed and said the objective of the spill agreement was to spill to 120% TDG at all projects. Van Dyke noted that the available options are not necessarily beneficial to fish. He said that he recognizes that the Corps will make a decision on the two options available but that Oregon cannot recommend either one.

Turner took TMT through a presentation. The Corps is implementing the flex spill agreement. The Dalles spill cap is at 40% and the 12-hour TDG metric is above the gas cap at 121%. Turner commented that the spill cap as a percent of outflow method has proved to be more effective in managing TDG. Over the last 15 days, the Corps has hit the 120% target on 6 days. Before that, 120% TDG was never met.

Turner showed the simplified TDG project schematic graphic, which illustrates how TDG is passed downstream. In this version, which is available on the TMT website, he used observed data from the last 12 hours to show what is currently happening at The Dalles and John Day. The Dalles tailwater gauge is different than other projects because it is located nearly 3 miles downstream of the project on the powerhouse side of the river, resulting in the gauge being influenced by spill at The Dalles as well as TDG from upstream that passes through the powerhouse. Spill at John Day and environmental conditions can lead to high TDG in The Dalles forebay, which may require lowering The Dalles spill cap to comply with state water quality standards.

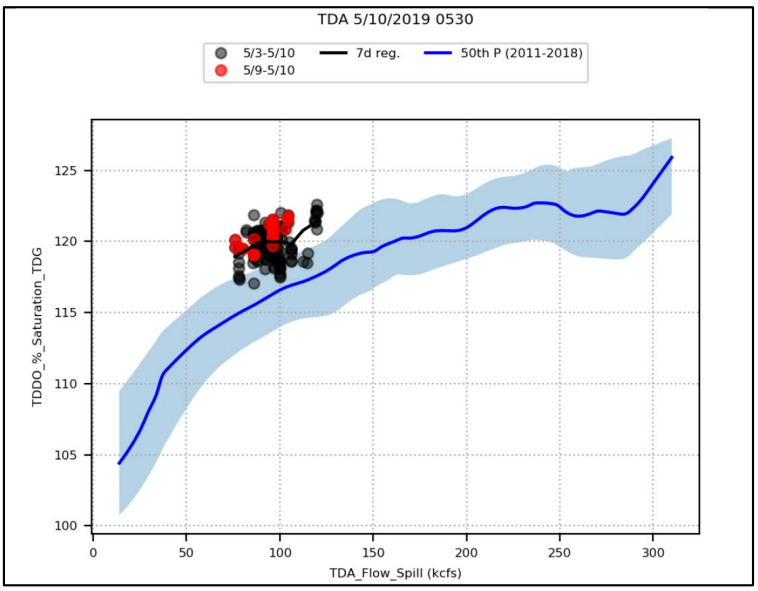


Swank noted the increase between the John Day tailrace and The Dalles forebay. He asked if that was due to temperature increases in the reservoir. Turner said that temperature increases and low wind are most likely to blame. He also pointed out that decreases in barometric pressure also result in increases in TDG saturation.

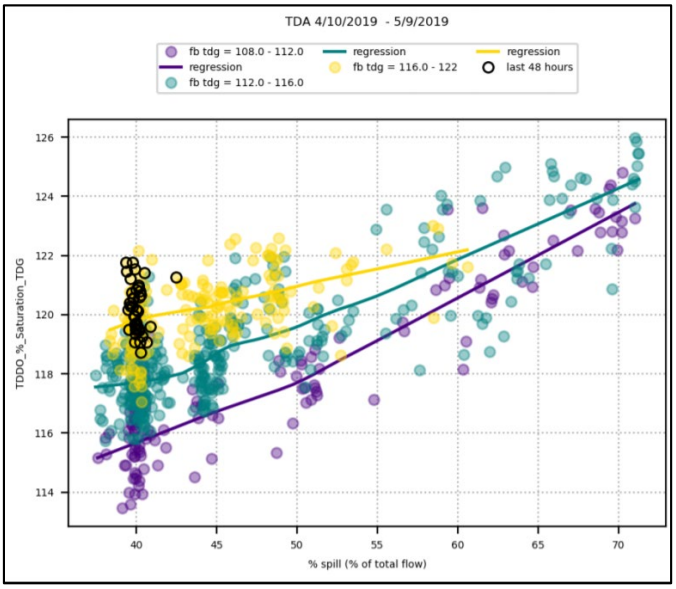
Van Dyke asked what the May 2 or May 3 illustrations would have looked like if the above pattern would have persisted. Turner said he did not run the models for those dates so he does not know.

Turner showed a graph of TDG saturation at The Dalles tailrace versus spill. The graph has a blue line denoting the 2011-2018 average, or 50th percentile. Over the past week, TDG has been consistently higher than this average. Ammann noted that this year there has been higher TDG in the forebay than historically due to new state TDG standards, which explains the

difference in the graph and provides further evidence of the large influence of The Dalles forebay TDG on The Dalles tailwater TDG.



Turner showed a graph of percent spill at The Dalles versus TDG, which is a better predictor of TDG than spill rate. The graph shows that since spill began on April 10, there has been a relationship between percent spill and TDG.



There were a few more slides with more information online. Today's meeting is limited to 1 hour, so Turner skipped these slides.

Ammann said that based on the data available, it looks like The Dalles spill cap would need to be reduced to 35% in order to not exceed the gas cap.

Tom Lorz, Umatilla/CRITFC, asked for more information on Option 1 (balance spill between John Day and The Dalles to achieve spill at The Dalles no lower than 40%). Turner replied that if that option were implemented, the Corps would start with reducing John Day spill by about 10 kcfs and maintaining spill at The Dalles to at least 40%, then continue to evaluate daily and adjust John Day as necessary to target 120% TDG at The Dalles. He said a 10 kcfs reduction at John Day would be a good start.

Lorz asked if there are any estimations or models the Corps can use to estimate the exact changes at The Dalles. He mentioned a concern that reducing and spilling the same amount over and over but with the forebay so high it would override what was done in the spillway and cause the project to be "chasing its tail". Turner agreed, saying it may require even more spill reductions at John Day to not exceed 120% TDG at The Dalles due to environmental conditions.

Tony Norris, BPA, also noted that there may be a limit as to how much spill can be reduced at The Dalles Dam due to turbine capacity limitations.

Kiefer commented that Option 2 seems to be the default per the spill agreement unless there is a consensus for adaptive management to do something else. Kiefer shared with the group that the Corps is not choosing to do an option but rather their actions are dictated by the spill agreement. He said that the current conditions would force the Corps to spill below 40% at The Dalles and therefore could be a detrimental unintended consequence necessitating an adaptive management option.

Van Dyke responded that Oregon would like the Corps to use "all the plays in their playbook". Ammann asked what was meant by that. Van Dyke said that several ideas have been mentioned for the Corps to consider, including changing the timing of the actions; changing to a more uniform spill pattern at The Dalles; and lowering the Bonneville pool. Ammann responded that she hadn't heard a request at TMT from Oregon to change the timing of the actions and was unsure what was being referred to. Regarding spill patterns, the Corps is using the only available spill patterns with bays currently in service and is spilling within the wall per the spill agreement. There has not been a TMT request or recommendation to provide a more uniform pattern at The Dalles and she wondered if there is interest in spilling outside the wall. Regarding lowering the Bonneville pool to reduce TDG in The Dalles tailwater, Ammann reminded TMT that the Corps did look into this alternative and there is a summary of the technical details posted to today's agenda (item 1b). With the short meeting time available, Ammann summarized that the Corps analyzed this request and came to the conclusion that at the current flow rate, reducing the Bonneville pool would only lower The Dalles tailwater elevation by 1 foot, which would have an insignificant impact on TDG (up to less than 0.1% reduction). She invited folks to look through the information that was posted and asked Salmon Managers to be clear if something was being requested of the Corps.

Kiefer voiced his support for an adaptive management solution to keep spill at The Dalles to at least 40%, saying that he is confident it would reduce overall PIT PH versus the spill agreement as written.

The Corps still feels Option 1 is the most prudent operation for TDG management but will continue to implement the agreement (Option 2) unless a consensus recommendation is reached by salmon managers to do Option 1.

TMT members were polled on the adaptive management operation in Option 1, with the option to Support, Object, or Abstain.

Option 1 – Balance Spill between John Day and The Dalles Dams in order to achieve spill at The Dalles Dam no lower than 40%.

a. Prioritizing spill at The Dalles Dam no lower than 40% would likely result in spill in the John Day tailwater less than 120% TDG.

Results of the polling were as follows:

USFWS – Support (would like to hear more about Idaho's option).
Umatilla/CRITFC – Support
Reclamation – Support the Corps decision
ID – Support
BPA – Support the Corps decision
NOAA – Support
WA – Support
OR – Abstain
Nez Perce – Support with the caveat that this does not set precedent for future operations
Colville – Support (would like to hear more about Idaho's option)
Warm Springs – Support
Corps – Support
Montana - Absent

Hearing no objections to Option 1, the Corps will maintain spill at The Dalles to at least 40% and reduce spill at John Day as necessary to not exceed the gas cap at The Dalles. This operation may result in reducing John Day below 120% TDG.

2. Next TMT

The next meeting will be a conference call on May 15 at 9 a.m. Call information is available on the agenda posted on the TMT website.

3. Today's Attendees:

Agency	TMT Representative
Army Corps of Engineers	Doug Baus (Chair), Julie Ammann, Lisa Wright
Bonneville Power Administration	Tony Norris, Scott Bettin
Bureau of Reclamation	Peter Cooper
NOAA Fisheries	Paul Wagner, Claire McGrath
US Fish & Wildlife Service	Dave Swank
Washington	Charles Morrill
Oregon	Erick Van Dyke
Idaho	Russ Kiefer
Montana	N/A
Nez Perce Tribe	Jay Hesse
Umatilla Tribe/CRITFC	Tom Lorz
Colville Tribe	Sheri Sears
Warm Springs Tribe	Jen Graham
Kootenai Tribe	N/A
Spokane Tribe	N/A

Other Attendees (non-TMT members):

Corps – Dan Turner, Aaron Marshall

DS Consulting – Donna Silverberg (Facilitator), Colby Mills

FLUX Resources – Melissa Haskin (Note taker)

Clearing Up – K.C. Mehaffey